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ABSTRACT

The problem of high school dropouts has generated increased interest among researchers, policymakers, and educators in recent years. This paper examines the many issues involved in trying to understand and solve this complex social and educational problem. The issues are grouped into four areas, related to the incidence, causes, consequences, and solutions to the problem. Within each area, the discussion identifies the important issues involved, the current state of research on the issues, and considerations for future research. The paper also attempts to portray the particular interests of the various groups that are concerned with these issues and the many disciplinary perspectives that have been or should be represented in understanding them. Data are presented on two tables. A 44-item list of references is included. (BJV)

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DROPOUTS

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HIGH SCHOOL DROPOUTS: A PROBLEM FOR RESEARCH, POLICY, AND PRACTICE

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In one particular school they kept telling me I had a bad attitude, and I think I kind of knew I didn't have a bad attitude, it was them, it was just in their heads. (B. S., a 16 year old male)

Over the last forty years, the proportion of young people who have failed to finish high school has decreased substantially. In 1940, more than 60 percent of all persons 25 to 29 years old had not completed high school; by 1980, that proportion had dropped to less than 16 percent (U.S. Bureau of the Census, 1985, Table 215).

Despite these long-term declines in dropout rates, interest in the dropout issue among educators, policymakers, and researchers has increased substantially in recent years. State and local education officials are currently devoting more time and resources to measuring the extent of the problem, to examining its causes, and to setting up programs for dropout prevention and recovery. Policymakers are promoting and supporting these efforts and passing legislation to fund them. And more research has appeared on the problem of dropouts in the last two years than perhaps the previous fifteen.

If the long-term incidence of dropping out is declining, why has the concern for this problem increased of late? Several explanations come to mind.

First, although the long-term incidence of dropping out has declined, the short-term incidence has remained steady and even increased, especially for some groups. For example, the proportion of all 18 and 19 year-olds who were not enrolled in school and had not completed high school increased from 16 to 17 percent between 1968 and 1978, although it did decline to just over 15 percent in 1984 (U.S. Bureau of the Census, School Enrollment, various years). The proportion of white male dropouts, in particular, increased from 14 to 17 percent between 1968 and 1978, and then declined to 16 percent in 1984.

A second reason for the increased attention to dropouts is that minority populations, who have always had higher dropout rates than the white population, are increasing in public schools. In 1982, racial and ethnic minorities represented the majority of students enrolled in most large cities in the United States; in Los Angeles, for example, minorities represented 78 percent of total school enrollments (Plisko and Stern, 1985, Table 1.5). And the proportions will increase in the future. By the year 2000, more than 50 percent of 15 to 19 year olds in California will be racial and ethnic minorities (Dolman and Kaufman, 1984). Such increases in minority populations alone could drive up high school dropout rates.

A third reason for increased concern about dropouts is that many states, including California, have recently passed legislation to raise academic course requirements for high school graduation. Although increasing academic demands could help to motivate some students, others--especially those already with a tenuous commitment to school--might be more inclined to drop out

(McDill, Natriello, and Pallas, 1985, 1986). Major efforts will be required to prevent more students from this high risk population from dropping out, efforts that were often not included in the initial round of educational reforms (Levin, 1986).

A fourth reason for increased concern about dropouts is a widespread belief that the educational requirements of work will increase in the future. Most of the recent state reform efforts and the national reports on education that prompted them have been predicated on a belief that the increased use of new technologies and structural changes in the composition of jobs in the economy will require more educational skills (e.g., National Commission of Excellence in Education, 1983; Task Force on Education for Economic Growth, 1983). While these visions of the future have yet to be substantiated (Levin and Rumberger, 1986), they do suggest that dropouts will be even more disadvantaged in the future job market then they have been in the past (National Academy of Sciences, 1984).

A final reason for increased concern about dropouts is political. Leading education officials, including the U.S. Secretary of Education and the California Superintendent of Public Instruction, have recently initiated the idea of using a series of "indicators" to judge the performance of the nation's and state's school systems. One of these indicators is the high school completion rate. Beginning in the fall of 1986, all high school and unified districts in California schools will be required to collect and report dropout data (California State Department of Education, 1986). This requirement has prompted increased attention to the problem not only of how to define and measure dropouts but also of how to reduce the incidence of dropping out.

Whatever the reasons for this heightened concern, the dropout issue is likely to command increased attention from researchers, policymakers, and educators throughout California and the nation for some time to come. The purpose of this paper is to begin to examine the many issues involved in trying to understand and solve this complex social and educational problem.

In the remainder of the paper, I will briefly analyze four major facets of the dropout problem: (1) incidence; (2) causes, including social, economic, psychological, and educational factors; (3) individual and social consequences; and (4) solutions. For each facet, I will identify the important issues involved, the current state of research on these issues, and considerations for future research. I will also attempt to portray the particular interests of various groups--policymakers, educators, and researchers--with respect to these issues and the many disciplinary perspectives that have or should be represented in understanding them.

THE INCIDENCE OF THE PROBLEM

Before dropping out or any perceived social problem can be fully understood, it is important to know its magnitude or incidence. What is the incidence of dropping out of high school? Is it increasing or decreasing? How do the incidence of dropping out and trends in the dropout rate vary among different social groups?

The Incidence of Dropping Out

The first question is the most important in understanding the nature of the dropout problem, yet it is also the most difficult to answer. In fact, no one knows what the high school dropout rate really is in the United States because there is neither a consensus definition of a high school dropout nor is there a standard method for computing the dropout rate. The two most widely cited dropout statistics--the dropout rate computed from U.S. Census data and the high school attrition rate computed from state-level school enrollment data--show widely different dropout rates and probably represent lower and upper limits to the true rate.

The U.S. Census Bureau computes the dropout rate as the proportion of a given age cohort that is not enrolled in school and has not completed high school. The latest figures are available for October, 1984. They show a dropout rate of 6.8 percent for persons 16 and 17 years old and a dropout rate of 15.2 percent for persons 18 and 19 years old (U.S. Bureau of the Census, School Enrollment, 1985, Table 6).

The other widely-cited dropout statistic is based on attrition data. It shows the proportion of a given entering high school class, usually the ninth grade, that graduates 4 years later. The latest figures show an average attrition rate of 29.1 percent for the high school class of 1984 in the U.S. and an attrition rate of 36.8 percent in California (*Education Week*, 1986, pp. 12 and 13).

The reason these two statistics are so different (the latter being almost twice as large as the former) can be traced to five factors that must be considered in computing any dropout rate. The first factor is the choice of cohort. The Census figure is based on an age cohort, while the education figure is based on a class cohort. Neither one is necessarily superior to the other, although the latter one creates more problems because it requires measuring a cohort's status over an interval of time, while the former can be determined at one point in time. In either case, it is necessary to determine the particular age or class cohort to use in computing a dropout rate. One problem with using the entering ninth grade class is that it ignores those students who have dropped out in earlier grades.

The second factor in computing dropout rates is determining a person's status as a member of the cohort and as a dropout. This is not difficult to determine in an age cohort, but it is in a class cohort, especially at a school district level. Some students shop around for schools, which means they could be "enrolled" at more than one school at any one time; other students are transients, who could also end up "enrolled" at more than one school or district (California State Department of Education, 1986, pp. 26-27). Counting students twice as members of a given class cohort would overstate enrollment figures and, therefore, overstate the attrition rate.

The most critical factor in measuring dropout rates is determining whether or not a person is a high school dropout. A dropout is usually defined as a residual status: someone who has not graduated or is not currently enrolled. The attrition statistic computed by state education agencies uses a very broad definition of dropouts: it includes all persons except those who are known to have received regular high school diplomas. Persons who have completed the GED examination or the California High School Proficiency Ex-

amination are considered dropouts. So, too, are persons who are still attending high school at the time graduation status is determined (usually four years after entering the ninth grade) or taking courses in other institutions (e.g., community colleges) that could eventually be used to complete high school.

The Census Bureau uses a much narrower definition of dropouts than state educational agencies. Persons who have a regular or equivalent high school certificate or who are still attending school are not considered dropouts. This method also raises questions however. First, is an alternative high school certificate equivalent to a regular high school diploma? Some recent research suggests that GED holders do not do as well as regular high school graduates in labor market or educational opportunities, which may indicate that the two credentials are not equivalent (*Education Week*, May 14, 1986). Second, how should enrollment status be determined? Some students who are officially enrolled in school may not be attending regularly and at some point should be considered dropouts rather than students.

A third factor that must be considered in computing any dropout rate is the appropriate time interval for determining dropout status. State-level attrition data are based on graduation rates of a ninth grade class four years later. Dropouts include not only persons still enrolled or persons holding high school certificates at that time, but also persons who may receive a regular or equivalent high school diploma at a later point in time. A recent study of 1980 high school sophomores who later dropped out of school shows that 38 percent had received a regular or equivalent high school diploma by 1984 (Kolstad and Owings, 1986, Table 1). The current attrition rate in California of 30 percent could be reduced to 20 percent if adjustments were made for those persons who are likely to receive regular or equivalent high school diplomas by the time they are thirty years of age (California State Department of Education, 1986, pp. 30-31).

The issue of determining an appropriate time interval may become more important in the future if more students opt to finish high school at a later time or through alternative means. This, in fact, could be happening as more students become aware of and have the opportunity to finish their high school diplomas at community colleges, at night school programs, or through other means.

A fourth factor that must be considered in computing any dropout rate is the appropriate source of information on enrollment and graduation status. The Census Bureau uses population data that are collected in October of each year as part of the ongoing Current Population Survey. Census enumerators obtain enrollment information about each member of the sample household. This information, which can come second-hand, could be inaccurate because parents, for example, might not know the actual enrollment or graduation status of their children. Attrition rates computed at a state level are less prone to error in the way they are currently defined, except that initial enrollment figures for any high school class could be overstated as discussed above.

The final factor to consider in measuring dropout rates is the appropriate level of determination. Currently, census data are used to compute a dropout rate at a national and regional level. Attrition rates are computed at a state level and averaged across states to compute a national figure.

While both national and state levels of analysis are useful to determine appropriate state and federal policy responses to this problem, California will begin collecting district-level dropout rates in the Fall of 1986. One question this district requirement raises is whether it is appropriate to compute dropout rates at this level. It may be appropriate to use dropout rates as a goal for improving future performance within the district. However, it would not be appropriate for comparing performance across districts for the same reason that cross-state comparisons of attrition rates or other performance data are inappropriate: school districts enroll different types of students who have very different propensities to drop out of school (Steelman and Powell, 1985).

Moreover, there is the practical problem of obtaining an accurate dropout rate at the district level. Currently, the State of California has defined a dropout as:

> ...any student who has been enrolled in grade 10, 11, or 12 but who left school prior to graduation or the completion of a formal education, or legal equivalent, and who did not, within 45 school days, enter another public or private educational institution or school program, as documented by a written request for a transcript from that institution (California State Department of Education, 1986, p. 33).

The biggest problem with using this definition is that it puts the burden of proof for establishing continued enrollment status on the student's original school district and specifies the manner and time interval for obtaining that proof from other school districts. Surveys of individual school districts show that many school leavers cannot be easily traced and even those who reenter may not have their transcripts requested (California State Department of Education, 1986; Hammack, 1986). In addition, it puts districts with large proportions of school leavers and transient students at a disadvantage since they would have a greater proportion of students to follow up.

This discussion has pointed out the numerous factors that must be considered in measuring the dropout rate and the various issues that must be resolved before a suitable and accurate measure of dropouts can be derived. Additional research can help to illuminate these issues further, but ultimately policymakers and educators must decide on an appropriate definition of dropping out before accurate data can be collected.

Trends in Dropout Rates

A second major question about the incidence of the dropout problem concerns trends: is the dropout rate getting better or worse? Since there is no consensus on an appropriate dropout measure, it is difficult to assess trends in the dropout rate.

Census data, which have been computed on a yearly basis for more than twenty years, show no long-term increase in the aggregate dropout rate, only short-term increases. The dropout rate for persons 16 and 17 years old increased from 7.8 percent in 1968 to 8.8 percent in 1980, and then declined to 6.8 percent in 1984. The dropout rate for persons 18 and 19 years old increased

from 15.7 to 16.7 between 1968 and 1982 and then dropped to 15.2 percent in 1984 (U.S. Bureau of the Census, School Enrollment, various years).

State-level attrition data show that average dropout rates for the nation increased from 22.8 percent in 1972 to 27.2 percent in 1982 and then remained steady between 1982 and 1984 (U.S. Department of Education, 1984, 1986). These same data show that the California rate increased from 20.1 percent in 1972 to 30.1 percent in 1982 and then decreased to 26.8 percent in 1984.

Some of the observed increases in dropout rates could have come about from changes in the school participation patterns. California enrollment data show that the proportion of 9th, 10th, and 11th grade students failing to enroll in school the following year actually went down between 1977 and 1983, while the proportion of 12th grade students who failed to graduate went up dramatically (California Assembly Office of Research, 1985, Figure 4). This shift could have come about from an increasing number of high school seniors deciding to finish high school at a later time, such as through night school programs or community colleges.

Variations Among Social Groups

A third major question about the incidence of dropping out concerns variations among social groups. Dropout rates vary widely among social groups. They are higher for members of racial, ethnic, and language minorities, for men, and for persons from lower socioeconomic status. A national survey of 1980 high school sophomores shows an overall dropout rate of 13.6 percent. But dropout rates computed with these data varied from 12.2 percent for whites to 18.7 percent for Hispanics, from 12.6 percent for women to 14.6 percent for men, and from 8.9 percent for students from the highest socioeconomic levels to 22.3 percent for students from the lowest socioeconomic levels (Kolstad and Owings, 1986, Tables 1,2,3). Census data show dropout rates varying from 14.0 percent for white females to 26.2 percent for Hispanic males (U.S. Bureau of the Census, School Enrollment, 1985, Table 6).

Trends in dropout rates based on Census data also show variations among social groups. The long-term dropout rates have declined for all groups except white males. Dropout rates for 18 and 19 year olds declined from 23.8 percent in 1968 to 19.7 percent in 1984 for black males, from 24.7 percent to 14.5 percent for black females, and from 14.6 percent to 14.0 percent for white females. For white males, the dropout rate **increased** from 14.3 percent in 1968 to 17.9 percent in 1981, although it declined to 15.8 percent in 1984. Dropout rates for Hispanics have also declined, although data are only available for the last 10 years (U.S. Bureau of the Census, School Enrollment, various years).

These data suggest that members of racial and ethnic minorities, who traditionally have always had much higher dropout rates than whites, have shown marked improvements in their propensity to finish high school. The increasing dropout rates for white males could be related to changing patterns of school participation mentioned earlier and, therefore, may not indicate that the problem is actually getting worse for this group.

THE CAUSES OF THE PROBLEM

No one really knows what causes students to drop out of high school. Survey data reveal that students decide to leave school for a number of different reasons (Ekstrom, Goertz, Pollack, and Rock, 1986, Rumberger, 1983a); others are forced to leave school because of poor attendance or disruptive behavior (Fine, 1986). A large body of empirical research has identified a wide range of factors that are associated with dropping out.

Factors Associated With Dropping Out

The factors associated with dropping out can be grouped into several major categories: demographic, family-related, peer, school-related, economic, and individual. Within each of these categories there can be a large number of specific factors. Some are well-known and widely documented in numerous studies; others have not been well-explored in relation to this particular problem. Some of these factors can be manipulated through policy interventions within and outside of the schools; others cannot.

The demographic factors associated with dropping out are well-known and were cited earlier. Members of racial and ethnic minorities are much more likely to drop out of school than white students. Hispanics, in particular, are more likely to drop out than blacks. And males are somewhat more likely to drop out of school than females.

A large number of factors associated with family background and structure have also been identified in the research literature. Perhaps the most important is socioeconomic status. Numerous studies have found that dropout rates are higher for students from families of low socioeconomic status, no matter what particular factors are used to measure socioeconomic status (e.g., Kolstad and Owings, 1986; Rumberger, 1983a). Particular family-related factors associated with dropping out include low educational and occupational attainment levels of parents, low family income, speaking a language other than English in the home, single-parent families, and the absence of learning materials and opportunities in the home (e.g., Ekstrom et al., 1986; Rumberger, 1983a; Steinberg, Blinde, and Chan, 1984).

The influence of peers has not received much attention in previous research on the dropout problem, although it is a subject of considerable interest in other areas of educational achievement. Many dropouts have friends who are also dropouts. But it is not clear to what extent and in what ways a student's friends and peers influences the decision to leave school.

School-related factors associated with dropping out have received considerable attention, particularly because many of these factors are ones that can be manipulated through practice and policy. It is fairly well-documented that poor academic achievement in school, as measured by grades, test scores, and grade retention, is associated with dropping out (Ekstrom et al., 1986; Wehlage and Rutter, 1986). It is also known that behavioral problems in school are also associated with dropping out, including absenteeism, truancy, and discipline problems (Wehlage and Rutter, 1986).

Most research on school-related factors has focused on students' behaviors and performance in school. Little attention has been given to the influences of schools themselves--their organization, leadership, teachers--on students' decisions to drop out. Yet many dropouts attend schools with very poor facilities and inadequate teaching staffs, conditions that could affect their performance in school and ultimately their decision to leave (Fine, 1986).

Economic factors also influence students' decisions to leave school. About 20 percent of dropouts report that they left school because they wanted to or felt they had to work to help out their families (Ekstrom et al., 1986; Rumberger, 1983a).

Finally, there are a host of individual factors associated with dropping out. Dropouts have lower levels of self-esteem and less sense of control over their lives than other students. They have poor attitudes about school and low educational and occupational aspirations (Ekstrom et al., 1986; Wehlage and Rutter, 1986). Finally, many dropouts report that they leave school to get married or because they are pregnant (Ekstrom et al., 1986; Rumberger, 1983a).

Developing a More Comprehensive Model

While previous research on the causes of dropping out has been helpful in identifying the wide range of factors associated with this behavior, the empirical literature is still lacking. Many studies have focused on only a few of the many factors known to be associated with this problem. And many are based on correlational models that simply identify the direct relationship between one factor and dropout behavior, sometimes controlling for the influence of other factors.

What is needed, however, is a more comprehensive, causal model of the dropout process. Such a model should successfully identify the full range of proximal and distal influences, the interrelationships among them, and their long-term, cumulative effects. Developing such a model should command an important share of the research activity on this issue.

Four points should be considered in developing a causal model of the dropout process. First, future efforts should attempt to uncover the processes that underlie and lead to this problem. Many of the factors that are known to be associated with this problem are structural in nature and reveal little of the underlying processes. For example, why do Hispanics or children from poor socioeconomic families have higher dropout rates? Some possible explanations include the use of language in the home, the amount of time that parents spend with their children, and the type of "parenting" style used in the home (Dornbusch, Ritter, Leiderman, Roberts, and Fraleigh, 1985; Liebowitz, 1977; Steinberg, Blinde, and Chan, 1984).

Understanding school processes also deserves further attention (Natriello, Pallas, and McDill, 1986). In fact, dropping out itself might better be viewed as a process of disengagement from school that culminates in the final act of leaving. Understanding the processes within homes and schools is an area where ethnographic studies can make important contributions (Fine, 1986).

Second, future research efforts need to explore the interrelationships among the various factors associated with dropping out. This is particularly important in trying to separate actual causes of this problem from correlates

such as attitudes and behaviors. For example, while many female dropouts say they leave school because they are pregnant, both getting pregnant and leaving school may be caused by a number of other, related factors (Hofferth and Moore, 1979). Similarly, poor attitudes and disruptive behavior in school could be symptoms of underlying problems rather than actual causes of dropping out.

Third, future efforts should attempt to measure the long-term, cumulative effects of the various influences on dropping out. This is particularly important concerning the influences of family background and early school achievement. Family background can have a powerful, cumulative influence on school achievement through its effects on such things as the kind of schools children attend, their attitudes about school, and the learning that takes place in the home. These influences affect a student's achievement at an early age, which then influence subsequent attitudes and performance in school. Yet the cumulative influence of family background and early school achievement have not been fully explored either generally or with respect to the problem of dropping out.

Finally, a comprehensive understanding of dropout behavior needs to deal with the fact that there are different types of dropouts who leave school for different reasons. That is, there is no "typical" dropout. A poor, urban black may drop out of school because he is doing badly, because his school is understaffed, or because he believes his economic prospects are poor whether or not he finishes school. A suburban, middle-class white may drop out of school because he is bored although doing reasonably well in school, because he wants to spend some time with his friends, or because he knows he can finish school later at the community college. The causes and the nature of dropping out are very different for these two types of teenagers. Such differences should be explored further and used to develop separate models of dropping out for different types of students.

A more comprehensive model of dropout behavior should help identify the actual causes of dropping out and their relative influence. The result could be of immediate use to educators and policy-makers. It could help identify potential dropouts at an early age when effective interventions could be designed and implemented. It could help identify the kinds of educational interventions, both of an academic and psychological nature, that could be most effective in addressing this problem. And, it could help identify the mix of both educational and social interventions that could be effective in helping potential and actual dropouts.

THE CONSEQUENCES OF THE PROBLEM

Concern for dropouts is predicated on a belief that leaving high school before graduation is bad. Dropping out of high school is generally viewed as a visible form of academic failure in the same way that high school graduation is seen as a visible form of academic success. Yet neither act may reveal much about educational achievement. A recent study of the Chicago school system found, for example, that 47 percent of students enrolled in the ninth grade in

1980-81 graduated by 1984, but only 15 percent graduated who could read at or above the national average (Designs for Change, 1985).

Similarly, not all dropouts are behind in school and have poor test scores (Fine, 1986). In fact, dropping out could be beneficial for some children as well as for the schools they attend. Some students are not able or willing to get anything out of school; others chose other alternatives over going to school, alternatives that in some cases can be more fulfilling and rewarding. And some students who remain in school can be very disruptive to those students who want to be there and want to learn. A recent study of high school graduates and dropouts found, for example, that dropouts showed equal or greater improvements in self-esteem and a sense of control than high school graduates (Wehlage and Rutter, 1986).

Overall, however, most evidence supports the notion that dropping out has negative individual and social consequences. Individual dropouts suffer because many have difficulty finding steady, well-paying jobs not only when they first leave school, but also over their entire lifetimes. Society suffers as well since unemployment and lost earnings lower tax revenues and increase demands on social services. But the consequences of dropping out go beyond simple economic losses, no matter how large they may be. They cover a wide range of individual and social outcomes that need to be better understood.

Individual Consequences

The most immediate individual consequence of dropping out of school is a low level of academic skills. While graduating from high school does not insure that a person has sufficient academic skills for successful employment and further education, failing to graduate usually insures that a person does not. Recent studies confirm that dropouts, on average, have lower academic skills than high school graduates generally and even those graduates of similar personal characteristics (e.g., Alexander, Natriello, and Pallas, 1985).

Because of their low levels of academic skills, many high school dropouts find it difficult to secure steady employment and an adequate income. Their inadequate education can become an even bigger disadvantage over time because dropouts have fewer opportunities to obtain the additional education and training needed to remain even relatively competitive in the job market. These economic effects are sizable and are well-documented in the research literature and through published government data. For example, Census data reveal that the difference in expected lifetime earnings from age 18 to 64 between a male high school graduate and a male high school dropout in 1979 was more than 250,000 dollars (U.S. Bureau of the Census, 1983, Table 1).

While the educational and economic consequences of dropping out have been documented, much less attention has been focused on trying to identify and measure other individual consequences. These would include effects on psychological well-being and health. It is possible that dropping out of school leads to poorer mental and physical health through its direct or indirect effects on employment and income. One study found, for example, that increased unemployment was associated with increases in total mortality, suicides, and admissions to state mental hospitals (Brenner, 1976). Since dropouts have higher rates of unemployment than other persons, this study would suggest that

they would also suffer greater rates of mortality, suicide, and mental disorders. Yet the causal relationship between dropping out of school and subsequent mental and physical health has not been fully explored.

Social Consequences

Dropping out of high school not only affects those who leave school, but also society at large. Moreover, the social consequences go beyond the economic and psychological impacts that befall individual high school dropouts. Henry Levin, in the only comprehensive study that has ever been done on this facet of the dropout problem, identified seven social consequences of inadequate education, which he defined as the failure to complete high school (Levin, 1972, p. 10):

1. Forgone national income;
2. Forgone tax revenues for the support of government services;
3. Increased demand for social services;
4. Increased crime;
5. Reduced political participation;
6. Reduced intergenerational mobility; and
7. Poorer levels of health.

For each of these areas he examined the research literature and summarized what was known about the relationship between education and that particular social outcome. He then estimated the social costs associated with the first four outcomes.

Forgone income is perhaps the most often cited social consequence of dropping out of high school. It is also the most widely documented. Levin estimated that the forgone income from the cohort of males 25 to 34 in 1969 who failed to finish high school amounted to 237 billion dollars. This forgone income resulted in forgone government revenues of $71 billion (Levin, 1972,). A more recent study estimates the forgone income of both male and female dropouts from a single high school class in 1981 amounted to $228 billion and forgone government revenues amounted to more than $68 billion (Catterall, 1986, Table 2).

The social consequences and social costs of dropping out go beyond forgone income and revenues however. As Levin documents, high school dropouts are more likely to require a wide range of social services, including welfare, medical assistance, and unemployment assistance; they are also more likely to engage in crime, have poorer health, have lower rates of intergenerational mobility, and lower rates of political participation. Based on the research literature and cost data available at that time, he estimates the social costs of providing social services and fighting crime associated with dropping out at $6 billion per year (Levin, 1972). Today, of course, the figures would be much higher.

Levin's study is remarkably useful in helping to identify a wide range of social consequences due to dropping out. However, the study and the literature it reviews are more than fourteen years old. Given the large amount of research that has been undertaken in the last fourteen years in the areas of crime, health,

and welfare, it would be useful to once again examine this large body of literature to try to ascertain the many social consequences of dropping out.

It is likely, for example, that the social consequences are higher today than in the past. That definitely appears to be the case with respect to earnings and unemployment. The earnings differential between male high school dropouts and male high school graduates increased from $73,000 in 1968 to $260,000 in 1979, which was much higher than the increase in consumer prices (Levin, 1972, Table 8; U.S. Bureau of the Census, 1983, Table 1). Unemployment rates for high school dropouts were 20 percent higher than overall unemployment rates in 1950, but 100 percent higher in 1979 (Rumberger, 1983b, Table 5).

In the future, the relative economic disadvantage to dropping out of high school could be even greater than today. The skill requirements of many jobs could be altered in the future due to the increased use of new technologies. Without a sound, basic education dropouts will be less able to learn new skills and adapt to a changing work environment (National Academy of Sciences, 1984); thus they could become even less employable.

The consequences of dropping out of high school deserve more attention by researchers and policy analysts. An attempt should be made to more fully document the wide range of impacts resulting from dropping out of high school, both good and bad. And more comprehensive estimates should be prepared on the total social costs of this major problem. Such estimates could be valuable in rallying political support to fund dropout prevention and recovery programs.

SOLUTIONS TO THE PROBLEM

Not all students can or should be expected to finish high school. Yet many students want to finish school and could be helped through effective policy interventions. Without such interventions the dropout rate could easily increase due to the rising proportion of minorities in the school-age population and increased academic requirements for high school graduation. While further research on the causes of dropping out will help to better identify and measure the influence of the many factors associated with this problem, the search for effective solutions cannot wait.

There is no lack of interest and effort currently being made in finding and promoting solutions to the dropout problem throughout the United States. California, for example, enacted a bill in 1985 specifically geared to funding state and local efforts for dropout prevention and recovery programs. The California State Department of Education formed a new High Risk Youth Liaison Unit to coordinate state dropout efforts and assist local efforts throughout the state (Stern, 1986). And new studies have been undertaken to identify and characterize successful dropout programs in California and from around the country (e.g., Bullis, 1986; Olsen and Edwards, 1982; Stern, Catterall, Alhadeff, and Ash, 1985).

Toward Effective Interventions

Recent reviews of dropout programs and the vast literature of the causes of dropping out, although far from complete, do suggest some elements needed to develop a successful strategy of dropout prevention and recovery. Some of these elements include:

1. Different programs designed for different types of dropouts;
2. An appropriate mix of educational and non-educational services in each program;
3. Accurate and timely identification of students with a high risk of dropping out; and
4. Programs designed for early prevention, late prevention, and recovery.

The first element follows from the discussion of the causes of dropping out. Different kinds of students drop out for different reasons. Some are related to problems in school, such as a lack of interest or poor performance; others are related to factors outside of the school, such as the need to find work or having a child. A comprehensive strategy will need to address all of these factors, providing programs for different children with different needs. For example, recovery programs for teenage mothers will have to serve their needs for child care as well as for an education; prevention programs for similar kinds of students should include birth control information and services, as well as educational services.

Beyond these apparent needs, there are a host of other needs that effective programs must address. They must first address the particular academic needs of the students by providing an appropriate type of curriculum, teaching staff, instructional progress, and even schedule and location (Stern, 1986). For example, reviews of dropout programs suggest that successful programs often mix academic and vocational studies, provide more individualized instruction, and use a teaching staff more sensitive and responsive to the needs of the students (Bullis, 1986; Olsen and Edwards, 1982; Stern, 1986).

Besides these educational elements, successful programs need to address other needs of students. Perhaps the most important is their psychological need for someone to care about them individually, a need that is often met through the provision of counseling (Bullis, 1986; Olsen and Edwards, 1982).

The third element is crucial if dropout prevention programs are to be successful. That is, the schools must be able to successfully identify those students who are most likely to drop out of school. A recent study of California dropouts found that half of the dropouts interviewed did not discuss their decision with anyone at school before they left (Olsen and Edwards 1982).

Timely identification is equally important. The earlier a student with a high risk of dropping out is identified, the more likely a sustained effort at dropout prevention will be successful. Research has shown that some dropouts begin showing signs of academic failure and disengagement in school as early as the third grade (Lloyd, 1978). Successful identification of high risk students in elementary and junior high school would provide more time to intervene and address the needs of these children at an early age.

The final element follows from the third. If students with a high risk of dropping out can be identified at an early age, then prevention programs should be started at an early age as well. Even if accurate, early identification is not possible, it still makes sense to initiate early interventions for disadvantaged kids who generally have a high probability of dropping out. A recent evaluation of one pre-school program for the disadvantaged found that it reduced the incidence of dropping out (Schweinhart, Berrueta-Clement, Barnett, Epstein, and Weikart, 1985).

The Need for Systematic Evaluations

While descriptive reviews of programs are helpful in designing effective interventions, systematic evaluations are needed to determine both the effectiveness of dropout prevention and recovery programs and their costs (Rossi, Freeman, and Wright, 1979). Evaluations of program effectiveness determine the extent to which programs are effective in producing their desired outcomes. In dropout prevention programs, for example, desired outcomes may be a reduced incidence of dropping out among the target population or improvements in some of the known correlates of dropping out, such as student involvement or academic performance. Evaluations must be able to determine whether the outcome was actually caused by the program or caused by something else.

Evaluations of costs involve determining all the resources used in the program not only so that the full cost of the program can be determined, but also so that the program can be properly implemented in another setting (Levin, 1983). Information on program effects and costs can then be compared in two ways. Cost-benefit studies determine whether a program's benefits exceed its costs; cost-effectiveness studies determine whether one program is more effective for each dollar spent than other, alternative programs.

To my knowledge, no systematic evaluations of dropout programs have yet been done where both the effectiveness and costs have been fully evaluated. Yet only by considering both the costs and effectiveness of dropout programs will it be possible to produce the greatest improvement in the dropout problem at the lowest social cost. One of the problems that plagues even modest efforts to identify effective programs is a lack of suitable information on program features and outcomes (Stern et al., 1985).

There have been some attempts to measure the effectiveness of some regular school programs in keeping students in school. Vocational education in high schools, for example, is often said to make schooling more relevant for certain kinds of children and thus increase their likelihood of staying in school. Other kinds of alternative educational programs, such as alternative or continuation schools, are thought to have similar effects (Stern et al., 1985). Yet the effectiveness of such programs on reducing the likelihood of dropping out has not been demonstrated (Catterall and Stern, 1986).

While no cost-effectiveness evaluations of dropout programs have been undertaken, there have been attempts to compare the costs of dropout prevention to the economic benefits associated with the completion of high school. In his earlier study, Levin estimated that each dollar of social investment in dropout prevention would produce 6 dollars in national income and almost 2

dollars in tax revenues over the lifetime of the 25-34 year old males he examined (Levin, 1972). A more recent study estimated that the costs of dropout prevention in Chicago would be less than one percent of the economic benefits derived from increased tax revenues, reduced welfare payments, and savings from the costs of crime (Hess, 1985).

CONCLUSIONS

Dropping out of high school is a complex, multi-faceted, problem. Successfully addressing this problem will require the combined efforts of educators, policymakers, and researchers. Each has a crucial role to play in understanding and solving this problem.

Researchers need to develop a better understanding of the long-term, causal process that leads up to a student's decision to drop out of school. This effort should proceed as part of the larger effort to understand the cumulative, school-learning process more generally. Other efforts should be directed toward better understanding the individual and social consequences of dropping out, assessing social costs, and conducting systematic evaluations of dropout prevention and recovery programs.

In most of these efforts, researchers will benefit from the close involvement of both policymakers and educators. School personnel, for example, can provide valuable insight and assistance in studying both the causes and solutions to this problem. Moreover, some issues related to this problem--such as the definition and measurement of dropout rates at the local level--are an immediate problem to local school officials.

Policymakers also have a role to play generating and sustaining political interest in this issue and providing needed support of dropout research and programs. They must also help to determine an appropriate definition of dropping out so that accurate information on the incidence of dropping out can be collected and used to establish policy priorities.

Finally, educators have perhaps the most important role to play. Teachers and administrators are most responsible for implementing new programs designed to help dropouts. They are closest to the problem and therefore play the most crucial role in improving the educational experiences of students at risk.

As with other social problems, the problem of high school dropouts may never be completely understood or completed solved. But through the combined efforts of researchers, policymakers, and educators, substantial headway can be made in reducing this problem.

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